REMARKS

Applicant intends this response to be a complete response to the Examiner's **6 July 2010** Final Office Action. Applicant has labeled the paragraphs in his response to correspond to the paragraph labeling in the Office Action for the convenience of the Examiner.

DETAILED ACTION

The Examiner states and/or contends:

> 2. Affirmation of Applicant's election with traverse of invention Group I, claims 49 - 66 and 96 - 97, in the reply filed on May 05, 2010 is acknowledged. The traversal is on the ground(s) that the apparatuses, methods and films are directly related and inextricably interwoven. The apparatuses are specifically designed to produce the films of this invention. Likewise, the methods are specifically designed to produce the films of this invention. The unique structures of the apparatuses and the unique features of the methods are necessary for producing the unique features of the film. Additionally, the unique features of the films require the unique features of the apparatuses and the methods. Unity of invention under the PCT are satisfied by the unique attributes of each of the three groups, films, apparatuses, and methods and the fact, that the apparatus is specifically designed to produce the film and the methods are specifically designed to produce the film.
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> In response to arguments, the ExC!'miner respectfully submits that as set forth in the Office Action dated January 05, 2010, the inventions listed as Groups 1, 2 and 3, do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: unity of invention is present a priori since there are common technical features to the three Groups of inventions, However, the coextrusion of oriented films comprising two polymers with a phase separation characteristic is taught by Momose US Patent No 5,019,439 (Abstract). Thus, the corresponding technical features are not the inventors own contribution to the art. Therefore, there is no special corresponding special technical feature or unity of invention between the claimed Groups. Restriction is appropriate.
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> The requirement is still deemed proper and is therefore made FINAL.

Applicant still maintains that the restriction requirement was improper and burdensome on the inventor, but Applicant affirms the election of Group 1.

Claim Rejections - 35 USC § 102

11. **Claims 56-59** stand rejected under 35 U.S.C.102 (b) as being unpatentable over Momose US Patent No 5,019,439.

The Examiner states and contends as follows:

> 5. Considering claims 56 - 59, Momose teaches an extruded oriented film comprising a layer of alloy of two polymers, the second resin corresponding to applicants P1 and the first resin corresponding to applicants P2. The first resin may be, for example, a polyolefin such as polyethylene or polypropylene, polystyrene, a polyacrylonitrile, polyester, a polycarbonate, poly vinyl chloride, or a modified resin thereof. The second resin may be, for example, a polyamide, a saponified ethylene vinyl acetate copolymer, an ethylene vinyl alcohol copolymer EVOH (Col. 3, lines 42 -48); both resins are partially crystalline under 100°C (Le. nylon 6 P1 and polyethylene P2, as described in example 2); wherein P2 in its unoriented state at 20 0°C exhibits a coefficient or modulus of elasticity more than 15 % lower than P1, and the alloy comprises a dispersion of microscopically fine fibrils (tapes) of P1 surrounded by P2. These fibrils or tapes extend each mainly in one direction and has width and thickness lower than 5 μm; said fibrils are flat and substantially parallel with the plane of the film, with thickness preferably in the range 0.05 to 10 μm and width more than five times the thickness (Col. 3,

lines 1-21). Furthermore, that as result of the above described construction; the thermoplastic resin film can exhibit significantly improvement gas barrier property as compared with a known film having dispersed therein fine particles of the second thermoplastic resin (Col. 3, lines 23 - 28). Moreover, Momose teaches in the embodiment illustrated in Fig. 1 that the fibrils or tapes of resin P1 show at least 4 die lines. Thus anticipating all limitations in the subject claims.

Momose does not teach a film comprising an alloy having fibrils of a first polymer dispersed in a second polymer, where the fibrils have a thicknesses less than or equal to about 1 μm and a width at least 5 times the thickness. In fact, Momose expressly teaches that: "[e]ach of the tapes **3** generally has **a width of 75 μm or more**." Momose at Col. 3, ll. 3-4 (emphasis added).

Moreover, Momose expressly teaches that: "a portion of the tapes 3 should have **a width of at least 200 times, preferably 1000 times the thickness of the matrix 2**. Momose at Col. 3, ll. 3-22 (emphasis added). In the present invention, the claim states that the width of the fibrils is 5 times the thickness of the fibrils and the thickness of the fibrils is less than or equal to 1 μm.

Because Momose does not disclose an alloy comprising fibrils of a first polymer dispersed in a second polymer, where the fibrils have thicknesses less than or equal to about 1 μm and a width at least 5 times the thickness (*i.e.*, less than or equal to about 5μm), Momose cannot anticipate the claims 56-59 of this invention. Applicant, therefore, respectfully requests withdrawal of this rejection.

Moreover, Momose cannot even render claims 56-59 obvious because Momose teaches directly away from the limitation that the thickness of the fibrils is less than or equal to 1 μm and the width is 5 times the thickness (*i.e.*, less than or equal to about 5μm). In fact, Momose expressly states that the preferred structure includes tapes having a width equal to the matrix. Thus, Momose teaches individual tapes that have widths that extend over large areas of the film, while the present invention includes microscopic fibrils of a first polymer dispersed and surrounded by a second polymer. Nothing in Momose suggest such a film, nor suggest to any ordinary artisan how to prepare such a film.

Claim Rejections - 35 USC § 103

7. **Claims 49-55 and 96-97** are rejected under 35 U.S.C.103(a) as being unpatentable over Momose US Patent No 5,019,439 in view of Gash US Patent No 4,243,463.

The Examiner states and contends as follows:

8. Considering claims 49 - 55 and 96 - 97, Momose teaches an extruded oriented film comprising a layer of alloy of two polymers, the second resin corresponding to applicants P1 and the first resin corresponding to applicants P2. The first resin may be, for example, a polyolefin such as

> polyethylene or polypropylene, polystyrene, a polyacrylonitrile, polyester, a polycarbonate, poly vinyl chloride, or a modified resin thereof. The second resin may be, for example, a polyamide, a saponified ethylene vinyl acetate copolymer, an ethylene vinyl alcohol copolymer EVOH (Col. 3, lines 42 -48); both resins are partially crystalline under 100°C (i.e. nylon 6 P1 and polyethylene P2, as described in example 2); wherein P2 in its unoriented state at 20°C exhibits a coefficient or modulus of elasticity more than 15 % lower than P1 , and the alloy comprises a dispersion of microscopically fine fibrils (tapes) of P1 surrounded by P2. Referring first to FIG. 1, designated generally as 1 is a thermoplastic film according to the present invention. The film 1 is composed of a matrix film 2 formed of a first thermoplastic resin, and a plurality of substantially continuous tapes 3 formed of a second thermoplastic resin exhibiting better gas barrier property (lower gas permeability) than that of the first resin and generally substantially uniformly dispersed within the matrix 2. The plane of each of the tapes 3 is substantially parallel with the plane of the matrix 2. Each of the tapes 3 generally has a width of 75 μm or more. The thickness of the tapes 3 is preferably in the range of 0.05 to 10 μm, more preferably 0.1 to 5 μm. These fibrils or tapes extend each mainly in one direction and has width and thickness lower than 5 μm; said fibrils are flat and substantially parallel with the plane of the film (Col. 3, lines 1-21). Therefore, the tapes or fibrils taught by Momose anticipate both dimensional limitations for said fibrils in the instant claims, i.e. "thickness generally around or lower than 1 μm, and width at least 5 times the thickness".
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> Regarding the limitation for the P1 fibrils to exhibit "locations of rupture", Momose teaches in the embodiment illustrated in Fig. 1 that fibrils or tapes of polymer P1 are discontinuous, thus meeting the limitation in the subject claims.
>
> Momose does not specifically recognize that the composite be a cross lamination of the polymeric films.
>
> Gash teaches that cross laminates of monoaxially oriented, thermoplastic polymeric films have a number of advantageous properties; in particular they have much better tear resistance than a single ply film of the same overall thickness and of the same polymer which has been biaxially oriented (Col. 1, lines 24 - 29).
>
> It would have been obvious to one having ordinary skill in the art at the time the invention was made to cross laminate the extruded oriented films of Momose when it is desired to provide films with improved tear resistance.

First, Applicants has canceled claim 97 without prejudice.

Second, Applicant points out that independent claim 49 no longer includes a requirement that the film be a crosslaminate, which is now covered expressly in dependent claim 54. Original claim 49 included language that could have been interpreted as requiring the film to be a crosslaminate, but the language also included "or is in the form of a rope, twine or woven-tape products." Thus, the film did not have to be a crosslaminate.

Applicant reasserts its arguments relating to Momose here. Momose clearly teaches directly away from an alloy layer comprising microscopic fibrils of a polymer P1 dispersed in and surrounded by a polymer P2, and especially **where a width and a thickness of the fibrils of P1 are less than or equal to 5μm**. Nothing in Momose even suggests that an alloy can be prepared with such fine fibrils as the **Momose tapes have a width greater than or equal to 75 μm**.

The Examiner includes Gash for the teaching of cross-laminates, which no longer relates to claim 49, but to dependent claim 54.

Addressing the combination of Momose and Gash, the combination produces a crosslaminate

where one of the films of the crosslaminate in a Momose film including tapes of one polymer in a matrix of a second polymer, where the **tapes have a width greater than or equal to 75 μm** – 15 times greater than the largest width of the microscopic fibrils of the present invention. Nothing in the combination would direct an ordinary artisan to prepare film or a cross-laminate including a layer comprising a alloy of microscopic fibrils of a first polymer dispersed in a second polymer, where the fibrils have a width and thickness less than or equal to 5 μm.

Because the combination of Momose and Gash does not disclose or even suggest films of this invention, the combination cannot render claims 49-55 and 96 obvious. Applicants, therefore, respectfully request withdrawal of this rejection.

New Claims 98-118

New independent claims 98, 105 and 112 and there dependents claim different aspects of the original structure of claim 49, which include an "and/or" connected clause. Applicant has divided the "and/or" limitation into four claims 49, 98, 105, and 112. Claim 98 includes the limitation that the thickness of the fibrils is less than or equal to 1 μm and the width of the fibrils are 5 times their thickness; claim 105 includes this limitation and the locations of rupture limitation, but lacks the limitations of flat and substantially parallel fibrils; and claim 112 include all the limitation of claim 49 in an and sense.

Nothing in the combination of Momose and Gash discloses, teaches or even directly an ordinary artisan to an expectation that microfibrils of the present invention would work or could be made. Thus, Applicant urges allowance of new claims 98-118. Applicant also believes that no new claim charges are needed as the present application include 96 claims and 8 independent claims. The application now includes 29 total claims and 6 independent claims.

16. **Claims 60-66** stand rejected under 35 U.S.C.103(a) as being unpatentable over Momose US Patent No 5,019,439 in view of Desarzens et al. US Patent No 6, 326,411 B1.

The Examiner states and contends as follows:

> 17. Considering claims 60 - 66, Momose teaches an extruded oriented film comprising a layer of alloy of two polymers, the second resin corresponding to applicants P1 and the first resin corresponding to applicants P2. The first resin may be, for example, a polyolefin such as polyethylene or polypropylene, polystyrene, a polyacrylonitrile, polyester, a polycarbonate, poly vinyl chloride, or a modified resin thereof. The second resin may be, for example, a polyamide, a saponified ethylene vinyl acetate copolymer, an ethylene vinyl alcohol copolymer EVOH (Col.3, lines 42 -48); both resins are partially crystalline under 100°C (*i.e.* nylon 6 P1 and polyethylene P2, as described in example

2); wherein P2 in its unoriented state at 20 °C exhibits a coefficient or modulus of elasticity more than 15 % lower than P1, and the alloy comprises a dispersion of microscopically fine fibrils (tapes) of P1 surrounded by P2. These fibrils or tapes extend each mainly in one direction and has width and thickness lower than 5 µm; said fibrils are flat and substantially parallel with the plane of the film, with thickness preferably in the range 0.05 to 10 µm and width more than five times the thickness (Col.3, lines 1-21).

Momose does not specifically recognize that the extruded oriented film be a cellular expanded film.

Desarzens et al.teaches an extrusion composition comprising a polymer, an adsorption agent including an expansion agent and a nucleating agent (Abstract). Furthermore, Desarzens et al. also teaches that by means of polymer extrusion technology, cellular structure materials of very variable apparent densities can be produced (Col.1, lines 16 -19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate expanding agents to Momose's polymeric composition when it is desired to obtain films having apparent density lower than the density of the unexpanded films. The weight proportion of P1 to P2 would be a result effective variable related to the final application of the thermoplastic polymeric cellular expanded film.

Applicant reasserts its arguments relating to Momose here. The Examiner includes Desarzens et al. for the teaching of an expansion agent.

The combination of Momose and Desarzens et al. produces an expanded film, where one of the layer is a Momose layer including tapes of a first polymer in a matrix of a second polymer, where **the tapes have a width of greater than or equal to 75 µm – 15 times greater than the width of the largest fibrils of the present invention**, where the fibrils have a width and a thickness of less than or equal to 5µm.

Moreover, the combination of Momose and Desarzens et al. does not disclose or even suggest to one of ordinary skill how one would go about preparing the alloy layer of this invention. Furthermore, the combination teaches firmly away from fine fibrils as the Momose tapes preferrably have width 200 to 1000 times the thickness of the matrix – far outside the 5 times requirement of the present invention, which is also limited by a 5 µm upper limit.

Because the combination of Momose and Desarzens et al. does not disclose or even suggest films of this invention and does not even suggest how one would go about making the films of claims 60-66, the combination cannot render claims 49-55 and 96-97 obvious. Applicants, therefore, respectfully request withdrawal of this rejection.

Having fully responded to the outstanding office action, Applicant urges that the application be passed on to allowance.

If it would be of assistance in resolving any issues in this application, the Examiner is kindly invited to contact applicant's attorney Robert W.Strozier at 713.977.7000

The Commissioner is authorized to charge or credit Deposit Account 501518 for any additional fees or overpayments.

Respectfully submitted,

Date: **21 September 2010**

/Robert W.Strozier/

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